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Is The Water Safe?

Think Before You Drink



United States
Department of
Agriculture

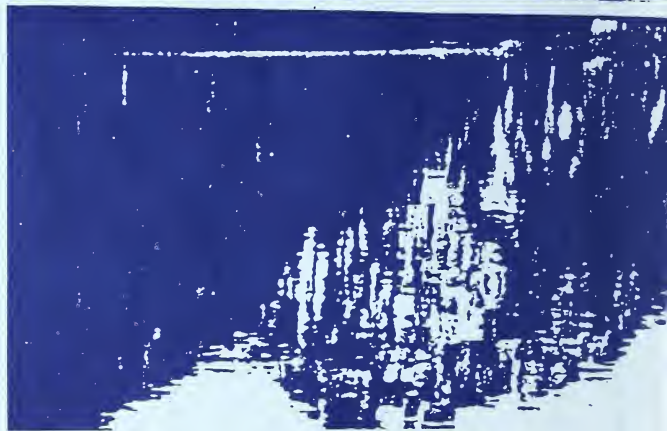
Forest
Service

FS-359

A Hidden Hazard

We hope your visits to your National Forests will be enjoyable, and they will be if you avoid hazards that may be encountered in the great outdoors. One hidden hazard you should know about is a disease that may be contracted from drinking untreated "natural" water. The disease is an intestinal disorder called GIARDIASIS (gee-ar-dye-a-sis). It can cause you severe discomfort.

The disease is caused by a microscopic organism, *Giardia lamblia*. The cystic form of giardia may be found in mountain streams and lakes. These natural waters may be clear, cold, and free-running. They can look, smell, and taste good. You may see wildlife drinking without hesitation from these sources. All of these indicators sometimes lead people to mistakenly assume that natural waters are safe to drink. Giardia may or may not be present, but there is no way to tell by looking at the water.



The Disease—Symptoms and Treatment

Although giardiasis can be incapacitating, it is not usually life threatening. After ingestion by humans, giardia normally attach themselves to the small intestine.

Disease symptoms usually include diarrhea, increased gas, loss of appetite, abdominal cramps, and bloating. Weight loss may occur from nausea and loss of appetite. These discomforts may first appear a few days to a few weeks after ingestion of giardia, and may last up to 6 weeks. Most people are unaware that they have been infected and have often returned home from vacations before the onset of symptoms. If not treated, the symptoms may disappear on their own, only to recur intermittently over a period of many months. Other diseases can have similar symptoms, but if you have drunk untreated water you should suspect giardiasis and so inform your doctor. With proper diagnosis the disease is curable with medication prescribed by a physician.

If you think you might not remember the word "giardiasis," save this brochure to show to your doctor. However, you can take steps to avoid the problem, so a visit to your doctor will not be needed.



Protect Yourself

There are several ways for you to treat raw water to make it safe to drink. The most certain treatment to destroy giardia is to boil water for at least 1 minute. Boiling also will destroy other organisms causing waterborne disease. At high altitudes (above 10,000 feet), you should maintain the boil for 3 to 5 minutes for an added margin of safety.

Chemical disinfectants such as iodine or chlorine tablets or drops are not yet considered as reliable as heat in killing giardia, although these products work well against most waterborne bacteria and viruses that cause disease. The amount of iodine or chlorine necessary to kill giardia depends on water temperature, pH, turbidity, and contact time between the chemical and the parasite. Until current research determines the right amount of chemical and duration of contact time that will work against giardia under a variety of water conditions, chemicals cannot be recommended for routine disinfection of water for giardia. In an emergency where chemical disinfection is necessary, use an iodine-based product, since iodine is often more effective than chlorine. If possible, filter or strain the water first, and then allow the iodine to work at least 30 minutes before you drink the water. If the water is cold or cloudy, wait at least an hour, or use more iodine.

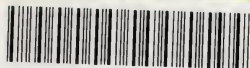
Some portable water filters claim to remove *Giardia* cysts, but few have been tested in unbiased laboratories. Check product literature to ensure that the filter will remove particles as small as 1 micron in diameter and cannot be easily contaminated by unfiltered water. Charcoal filters are not effective in removing *Giardia*, and some filters that do remove *Giardia* may not remove bacterial and viral agents that cause diarrhea. So you may still need to use chemical disinfectants in the filtered water.

For short trips, take a supply of water from home or other domestic source.

Protect Others

Giardia can be readily transmitted between humans and animals. Feces (human or animal waste) can contain the organism. Waste should be buried 8 inches deep and at least 100 feet away from natural waters.

Dogs, like people, can become infected with giardia. Unless they are carefully controlled, dogs can contaminate the water and continue the chain of infection from animals to humans. For this reason, their inclusion in your travel plans should be carefully considered.



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